

III. PROGRAM/PROJECT SUPPORT

The NRS team interfaced with numerous programs and projects during the past year to understand their objectives and help facilitate range safety related discussions or resolve impending issues. The team assists them in implementing Agency requirements mainly through proper interpretation of Agency Range Safety policy. This work is done either in direct contact with NASA launch or orbit vehicle contractors or through government-led panels.

A. Human Exploration Range Safety Panel (HERSP)

The NRS team currently participates in the HERSP, which consists of Range Safety personnel from NASA, the 45th Space Wing, and NASA program personnel representing the Ground Systems Development and Operations Program (GSDO), the Multi-Purpose Crew Vehicle Program (MPCV), and heavy-lift Space Launch System Program (SLS). Participating in this panel enables NRS to assess compliance with NPR requirements early in the design phase.

This typically results in supporting tailoring meetings to develop unique requirements for a prospective Program or Project and occasionally results in the processing of waivers or equivalent levels of safety to Agency requirements.

B. Commercial Crew Program (CCP)

NRS has also discussed with CCP the applicability of NASA, Air Force, and FAA Range Safety requirements.

At present, Agency Range Safety policy clearly states that when an FAA-licensed launch is provided to a commercial entity, Agency requirements do not apply. Since CCP is a hybrid situation (NASA astronauts launching on a commercial vehicle), and there are no FAA crew safety requirements in existence, then perhaps the incorporation of some portion of Agency policy, even on a commercial launch for CCP, may indeed be prudent. This will represent forward work between the NRS team and CCP for the coming year.

C. Morpheus Project

In accordance with NPR 8715.5, when a Center Range Safety organization does not exist, the NASA Range Safety Manager (RSM) has the authority to approve Flight Safety planning for flight operations. This provision was utilized for the Morpheus Project.

The RSM worked closely with the Morpheus Project to highlight a variety of items that should be addressed before free flight of the vehicle. The main deliverable was to be a Range Safety Risk Management Plan which highlighted risk analysis of the proposed flight profiles and any unique operational considerations such as Flight Commit Criteria and the amount and quality of Range Safety Officer training.

The plan was ultimately completed and approved by the KSC Center Director and the RSM in time for the Morpheus free-flight testing conducted at KSC. Despite the unfortunate result of that testing, all personnel, public and critical assets were properly protected.

D. Space Launch System (SLS)

The NRS team supported initial tailoring discussions between SLS and the 45th Space Wing. Though several years away from launch, the FTS design, certification, and test process are long lead time and critical safety items. As a result, though there are many Range Safety requirements to examine, the FTS discussion is typically the first one to take place.

The first meeting dealt with SLS current design considerations and looked at the flexibility of the 45th Space Wing. As this is an iterative process, this was the first of several discussions that will take place throughout FY13 involving FTS and other requirements that will be accepted as-is, tailored, or waived.

E. Multipurpose Crew Vehicle (MPCV)

Due to unique launch configuration/scenarios requiring careful consideration by NRS, the NRS team has acted in an advisory capacity to the MPCV program.

The MPCV will be flying on a United Launch Alliance vehicle. Typically, the launch vehicle provider is the point of contact for tailoring discussions and assessing risks from hazards produced by the launch vehicle because during ascent, the launch vehicle hazards typically envelop those posed by the payload/satellite. While NRS occasionally deals with entry risks for reentering stages of the launch vehicle, the risks associated with reentry will be part of every MPCV mission. MPCV will be responsible for risks associated with reentry.

NRS will examine these and other risks carefully and will assist MPCV, as requested, to meet Range Safety requirements.

F. Ground System Development and Operations (GSDO)

NRS has decades of experience working as a customer of the 45th Space Wing Range Safety and is familiar with their risk assessment computer models and practices. Based on this experience and their ability to assist with modernization efforts, NRS advises the GSDO program. The NRS team has identified and obtained funding for several projects in this capacity.

One of the major tasks supported by the NRS team was identifying current and future Range architecture requirements for the Eastern Range. Further details can be found in the KSC Section under Range Architecture Study.